

Work Order ID 59945

June 17, 2010 3:21:06 PM

Item ID: D3628-1

Accept

Setup Start

Page 2

Work Order ID 59945

June 17, 2010 3:21:06 PM

Item ID: D3628-1

Accept

Setup Start

Page 1

Revision ID:

Item Name: Cupped Washer

Start Date: 6/17/10

Start Qty: 500.00

Required Date: 7/02/10

Req'd Qty: 500.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan: CZ

Date: 10/6/17

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool # Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D3628

Rev B

0.00

0.00

0.00

0.00

100

Purchasing

Purchasing

PURCHASING

Memo

Issue P/O: 12112

Email or Ship DXF file to vendor

Laser Cut D3628-1 flat pattern and form as per Dwg D3628

Possible Supplier: GFI

Material release note is required

110

Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

Memo

Ensure material certification is attached

CZ 10/6/18

483 458
500

100/7/20 458
483

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

June 17, 2010 3:21:05 PM

Work Order ID: 59945

Parent Item: D3628-1

Parent Item Name: Cupped Washer



Comments: IPP Rev:A New Issue 07-05-28 JLM
IPP Rev:B Removed Powder 07-07-11 JLM

Page 1

Start Date: 6/17/10

Required Date: 7/02/10

Start Qty: ~~500.00~~
458

Required Qty: 500.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3628-1P

Purchased

No

110

Each

0.0000

1

500



CUPPED WAHSE



6/17/10 453

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

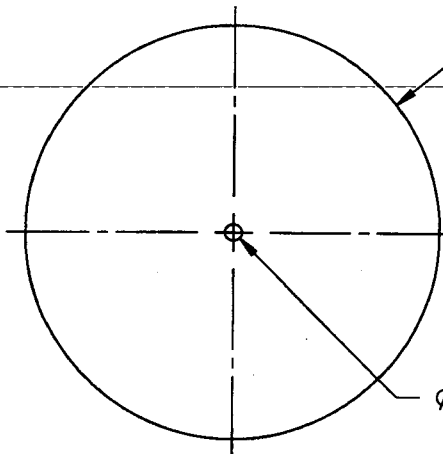
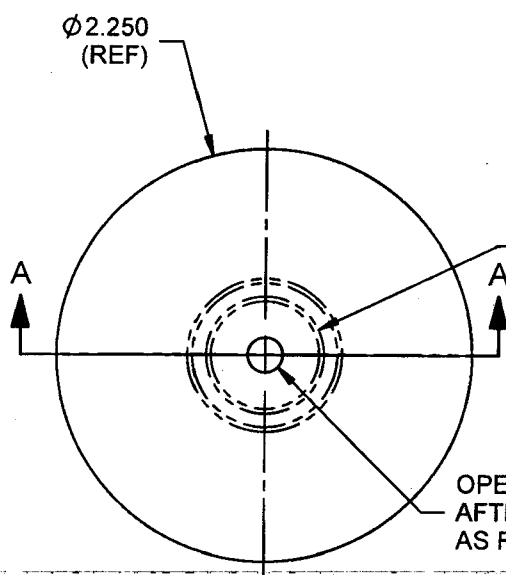
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

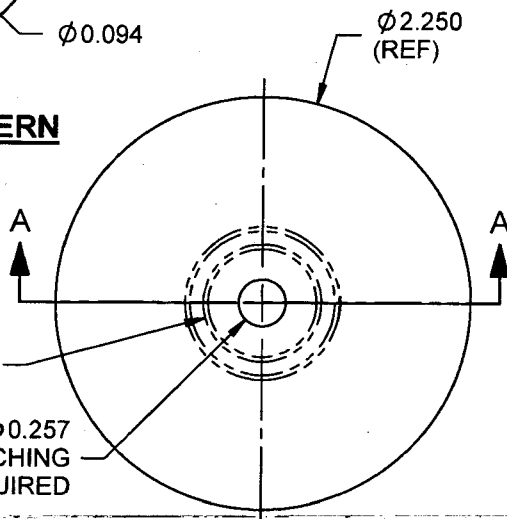
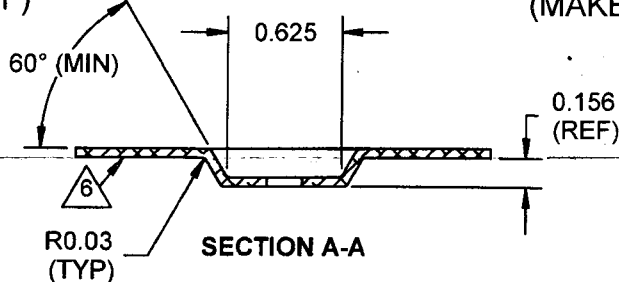
DART

DESIGN CB	DRAWN BY CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED LE	APPROVED [Signature]	DRAWING NO. D3628	REV. B SHEET 1 OF 1
DATE 07.07.09		TITLE CUPPED WASHER	SCALE 1:1
REV	DATE	DESCRIPTION	
A	07.06.08	NEW ISSUE	
B	07.07.09	REMOVE POWDER COAT	

RELEASED07.07.09 **[Signature]****CL10/6117**
W10: 59945**D3628-1F FLAT PATTERN****D3628-1 CUPPED WASHER**
(MAKE FROM D3628-1F)

PUNCH Ø0.64 x 0.16 DEEP

PUNCH Ø0.64 x 0.16 DEEP

OPEN TO Ø0.191
AFTER PUNCHING
AS REQUIREDOPEN TO Ø0.257
AFTER PUNCHING
AS REQUIRED**D3628-3 CUPPED WASHER**
(MAKE FROM D3628-1F)**NOTES:**

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET, 18 GAUGE (0.050 THICK) PER MIL-S-5019 (REF DART SPEC M304S18GA)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX
- 6) IDENTIFY WITH DART P/N "D3628-1/-3" USING FINE POINT PERMANENT INK MARKER ON THE UNDERSIDE OF THE PART AS INDICATED
- 7) WHEN DRILLING OUT THE CENTRE HOLE AFTER PUNCHING, ENSURE THAT THE HOLE IS DRILLED CONCENTRIC TO THE CUPPED AREA, WITHIN 0.03

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SHEET
ANNEALED
2B FINISH

SPECIFICATION: MIL-S-5059
OR AMS 5513 (304)
OR AMS 5524 (316)
OR ASTM A240
OR ASME SA240

PART NUMBER: M304S1TT GA
GA

WHERE "TT" = GAUGE THICKNESS

EG. 16 GAUGE SS SHEET = M304S16GA

GAUGE THICKNESS REFERENCE:

GAUGE	NOM. THICK. (IN)	THICKNESS RANGE (IN)
26	0.01875	0.0178 - 0.019
25	0.021875	0.0199 - 0.023
24	0.025	0.024 - 0.026
23	0.028125	0.027 - 0.029
22	0.03125	0.030 - 0.032
21	0.034375	0.033 - 0.035
20	0.0375	0.036 - 0.040
19	0.04375	0.041 - 0.046
18	0.050	0.047 - 0.052
17	0.05625	0.053 - 0.058
16	0.0625	0.059 - 0.065
15	0.0703125	0.066 - 0.072
14	0.078125	0.073 - 0.083
13	0.09375	0.084 - 0.098
12	0.109375	0.099 - 0.114
11	0.125	0.115 - 0.130
10	0.140625	0.131 - 0.145
9	0.15625	0.146 - 0.160
8	0.171875	0.161 - 0.176

REFERENCE ONLY

RELEASED
09/06/23/14

B	REFORMAT DWG, ADD ASTM/ASME SPECS (ZN D8-1), ADD GAUGE REF (CB-1), REF PAR 08-020A	CP	09.06.01
A	NEW ISSUE	DS	01.09.24
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN		DRAWING NO.	REV. B
CHECKED		M304S	SHEET 1 OF 1
MFG. APPR.		TITLE	SCALE
DE APPR.		304/316 SS SHEET	NTS
DATE	09.06.01	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PO REPRINT

Purchase Order ID PO12112

Purchase Order Date 6/18/10
PO Print Date 7/20/10

Page Number 1 of 1

Order From :

VC-GFI001

GFI
180 AVENUE LABROSSE
POINTE CLAIRE, QC H9R 1A1
CA

Contact Name

Vendor Phone

514 630 4877

Vendor Fax

514 630 4849

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req. Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D3628-1P	CUPPED WAHSE	7/20/10 Yes	458 Each	Purolator ground	\$2.4160	\$11.07

Special Inst: AS PER DWG D3628 REV. B
B59945
MATERIAL: 304/316 SHEET 18GA
(.050" THICK)

PO Total: \$11.07

CERTIFICATE OF CONFORMITY
REQ'D UPON DELIVERY

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

CL

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr:

4

Change Date: 7/20/10



180 AVENUE LABROSSE
POINT-CLAIRE, QC, CANADA H9R 1A1
TÉL.: (514) 630-4877 - FAX: (514) 630-4849

* GFI est une division de Thomas & Betts Fabrication Inc. / GFI is a division of Thomas & Betts Manufacturing Inc.



BON DE LIVRAISON / SHIPPING MEMO

DATE DE LIVRAISON / SHIPPING DATE			N° DE BON DE LIVRAISON / SHIPPING MEMO NO.		PAGE
JR - DY	MO - MO	AN - YR			
19	07	10	0442108		1/1



VENDU À / SOLD TO

EXPÉDIÉ À / SHIP TO

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON
K6A 1K7

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON
K6A 1K7

CODE DE CLIENT CUSTOMER CODE	N° DE CONTRAT JOB NO.	VOTRE N° DE COMMANDE YOUR PURCHASE ORDER NO.	EXPÉDIÉ PAR SHIP VIA
DART	GFI-0299	0216528	PO12112
QUANTITÉ QUANTITY	N° DE PIÈCE PART NO.	DESCRIPTION	
458	D36281	CUPPED WASHER	
		CERTIFICATE OF CONFORMANCE REQ	
		MFG. JOB# J0216528 - QTY 458.	

EXPÉDITEUR SHIPPER	N° DE BON DE LIVRAISON SHIPPING MEMO NO.



REÇU PAR / RECEIVED BY

DATE

TOUTES LES RÉCLAMATIONS DOIVENT ÊTRE FAITES EN DEDANS DE 5 JOURS DE LA RÉCEPTION.
ALL CLAIMS MUST BE MADE WITHIN 5 DAYS OF RECEIPT OF GOODS.

CERTIFICATE OF COMPLIANCE
CERTIFICAT DE CONFORMITE



Membre de / A Member of **Thomas & Betts**

180 LABROSSE AVENUE
POINTE CLAIRE, QC
H9R-1A1

DART AEROSPACE LTD
1270 ABERDEEN ST.
HAWKESBURY, ON K6A 1K7

8 w/ 1/27

CERTIFICATE NO. 5 OUR JOB NO J0216528 SHIPPING MEMO 0442108
ITEM QUANTITY PURCHASE ORDER PART NUMBER REV NAME DWG ISSUE
458 PCS PO12112 D36281 B CUPPED WASHER B
MATERIAL SUPPLIED BY MAT. REL. NO.
AMS 5513 304 ANN TW METALS / NORTH AMERICAN H/N # 6CH2

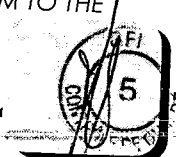
	PROCESS	PROCESSOR	RELEASE NOTE #
1	FIRST ARTICLE INSPECTION REPORT ON FILE	GFI	N/A
2	REF. GFI MANUFACTURING JOB NUMBER J0216528-001 (458 PCS)		
3			
4			
5			
6			
7			
8			
9			

WE HEREBY CERTIFY ALL THE PARTS COVERED BY THIS CERTIFICATE HAVE BEEN MANUFACTURED FROM MATERIAL SUPPLIED ON RELEASE NOTE SHOWN ABOVE AND THAT ALL PARTS HAVE BEEN INDIVIDUALLY INSPECTED AND CONFORM TO THE DRAWINGS AND PURCHASE ORDER REFERENCED ABOVE.

DATE 19 JULY 2010

G.F.I. Q.C. REP.

BSame



DP12-001 REV 0 Bombardier Certificate of Compliance
TW Metals District Procedure

Revision 0

Revision Date 02-03-00

Superseding None

Page 1 of 1

CERTIFICATE OF COMPLIANCE

FRAUD AND FALSIFICATION STATEMENT

The recording of false, fictitious or fraudulent statements or entries on this document may be punishable as a felony under federal statutes including federal law Title 18 Chapter 47

CERTIFICATE OF COMPLIANCE

This certificate of compliance certifies that the material supplied on the purchase order number below complies in all respects with the material description and procurement specifications

MERCURY FREE STATEMENT

We certify that mercury, cadmium or alpha bearing instruments and/or equipment which might cause contamination have not been used in the manufacture, fabrication, assembly or testing of any material supplied by TW Metals, Inc. Switches, glass thermometers, standard cell and other items containing the above elements may be used but they will be located so as not to constitute a contamination hazard

CUSTOMER NAME

GFI

PURCHASE ORDER NO 0076987

ITEM NO 0001

SHIPPER INVOICE NO D32602608

MATERIAL 304 S/S Sheet

SPECIFICATION AMS 5513

MANUFACTURER WILL North American Stainless

SIZE

150

HEAT / LOT NO

60CH22

PART NO

IS050361204A

QUANTITY

1 EA

TEST DEPARTMENT CLERK

Amy Davis

AUTHORITY

Joe Schnab

Director of Quality Assurance

8/10/09/12

This document is maintained as a Controlled Document only in the TW Metals Computer System. Once printed, this document immediately becomes uncontrolled and is subject to change at any time and without notice.

Description: 304L ANV 048-052 AMS5511/5513
Customer: TW Metals Cincinnati
Shipped: 05/26/2010
Heat: 6CH2

Size: 36 X 120
P.O.: EM14422
Part#: M49233058
Sales #: 01146381
Quantity: 62

UNITED PERFORMANCE METALS
This is to certify that in accordance with the records in
our files the material shipped on your purchase order
conforms to the following:
3475 Symmes Road Hamilton, OH 45015

Pam McAlpin



NORTH AMERICAN
STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 524033 02

Mail To:
UNITED PERFORMANCE METALS
3475 SYMMES ROAD
HAMILTON, OH 45015

Ship To:

UNITED PERFORMANCE METALS
3475 SYMMES ROAD
HAMILTON, OH 45015

Date: 1/28/2010 Page: 1

Customer: 0018 001

Steel: 302/304/304L

Finish: 2B

Your Order: 01015254

NAS Order: AN 0433956 01

Corrosion: ASTM A262/D2aE; 180Bend-OK

PRODUCT DESCRIPTION:

S/S COIL, C.R. ANNEALED & PICKLED; UNS 30400/30403/30200
ASTM A240/09a, A480/09, A666/03; ASME SA240/07, SA480/07, SA666/07
CHEM ONLY ON FOLLOWING ASTM: A276/08a, A479/08, A684/08, A312/08a
CHEM ONLY ON FOLLOWING ASME: SA312/07, SA479/07
AMS 5511H/5513H/5516P XNKK; MIL-5059D AMD3 (X CRN MEAS); MIL-4043B
NACE MR0175/01, MR0103/07; Q98766D-A X NAC PERM
MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED
FMI 304L/304/302; AMS 5511H

REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.
EN 10204:2004 3.1; Q98763F Cond A; RoHS Compliant
Material is Free of Radioactive Contamination
NAS Steel Making Process: EAF, AOD, & Cont. Casting
Product Mfg. by a Quality Mgt. Sys. in Conf. w/ISO 9001:2000
*Melted & Manufactured in the USA; Mat'l is DFARS Compliant

Product Id	Supplier Id	Thickness	Width	Weight	-----Length-----	Mark	Pieces	COMMODITY CODE
046CH2 A	046CH2	.0500	48.0000	26.060	COIL	3143.5	11	1

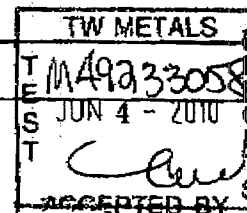
CHEMICAL ANALYSIS

CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

HEAT Supplier#	CM	C	CR	CU	MN	MO	N	NI	P	S
6CH2 6CH2	US	.0210	18.1400	.3840	1.7295	.3195	.0667	8.0550	.0325	.0010
	SI									
		.2985								

MECHANICAL PROPERTIES

Product Id	Supplier Id	10 01 c	UTS KSI	.2% YS RSI	ELONG 8-2"	Hard RB	Tail Hard	Grain No.
046CH2 A	046CH2	P T	94.92	47.12	48.95	85.50	89.00	9.00



NAS hereby certifies that the analysis on this certification is correct and the
material meets the specifications stated.

QC ENGINEER

ERIC HESS

1/28/2010